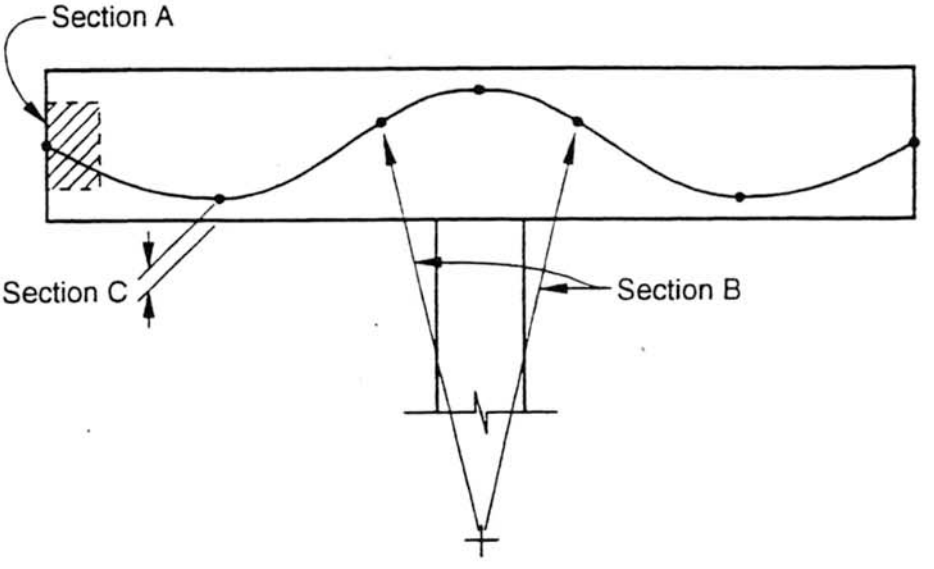
Prestress Clearances for CIP P/S Box Girder Structures

This memo is divided into three sections, anchorage zone clearances, tendon curvature, and determination of maximum eccentricities.



Section A
Clearance at Anchorage Zones

Recommendations for Stems and Anchorage Space for Prestressed "CIP" Box Girders

Kips per Girder "P_{jack}"	Stem Thickness (Inches)	Anchorage Space Requirements	
		Width (Inches)	Height (Inches)
0 – 1,000	12	27	27
1,000 – 1,500	12	27	41
1,500 – 2,000	12	27	54
2,000 – 2,500	12	27	68
2,500 – 3,500	12	27	81
3,500 – 4,000	12	27	89
4,000 – 5,000	12	27	105

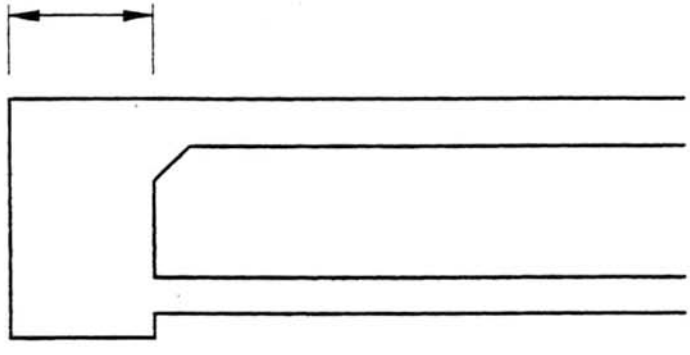
Supersedes Memo to Designers 11-28 dated May 1989

Section A
continued

Recommended Diaphragm Dimensions

Skew (Degrees)	Min. Diaphragm Thickness at Abutment	At Hinge
0 – 14	2' - 6"	2' - 0" *
15 – 29	3' - 3"	2' - 9"
30 – 44	4' - 0"	3' - 6"
45 – 55	4' - 9"	4' - 3"

* To accommodate spiral.



Section B
Tendon and
Duct Curvature

The use of sharp curvatures for the tendon path in the vertical plane can result in large forces normal to the duct. Where tendons are bundled, these forces can squash the ducts. Most CIP/PS structures have fairly flat cable paths, with the exception of post-tensioned bent caps.

The cable path should have an equivalent circular curvature radius greater than sixty feet. If less than sixty feet, normal forces due to the prestressing should be investigated. Possible solutions include greater duct clearances than required by Standard Plan B8-5, or extra reinforcement around the duct in the region of sharp curvature.

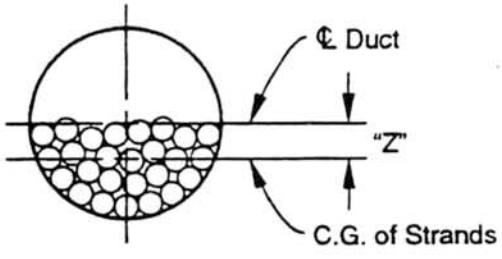
Section C
Maximum Cable Path Eccentricities

Use the recommended "D" value from the attached "D Chart" as a first trial. Revise "D" as required, following determination of "P_{jack}". Run analysis again based on the new "D" value.

See Memo to Designers 17-146 for prestressing requirements for the Southern Pacific Transportation Co. (SPTCo.) for railroad bridges.

The amount of tendon offset within the duct (the "Z" value) considered in charts is as follows:

Duct Size	"Z" Value
3" OD and less	½"
Over 3" OD to 4"	¾"
Over 4" OD	1"



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Attachments
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